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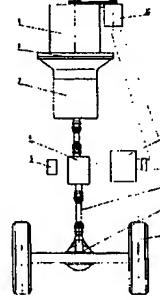
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[34]实用新型名称 混合动力电动车

[57]摘要

本实用新型涉及一种混合动力电动车，其包括车身、驱动转向轮、前从动轮、驱动桥、传动轴、电机、控制器、电池组，车身还安装有发动机，发动机通过离合器、变速箱与传动轴相连，发动机和电机一起驱动负载，并由控制器对发动机和电机的同时驱动实行控制。本实用新型发动机还通过皮带连接一发电机，发电机通过导线和充电器与电池组相连，可以用来对电池组进行充电。本实用新型发动机与电机一起驱动负载工作，其构造简单，组合简洁，工作可靠，车辆的行程可以不受电池组容量的限制。



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## 权 利 要 求 书

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- 1、一种混合动力电动车，其包括车身、驱动转向轮、前从动轮、驱动桥、传动轴、电机、控制器、电池组，其特征在于车身上还安装有发动机，发动机通过离合器、变速箱与传动轴相连，由控制器对发动机和电机的同时驱动实行控制。
- 2、如权利要求 1 所述的混合动力电动车，其特征在于所说的发动机还通过皮带连接一发电机，发电机通过导线和充电器与电池组相连。

# 说 明 书

## 混合动力电动车

### (一) 技术领域

本实用新型涉及一种电动车，具体地是一种混合动力电动车。

### (二) 背景技术

我们知道，近年来，随着社会的发展，环境污染日趋严重。特别是交通和汽车的发展，带来了空气和噪音污染的进一步严重。而电力驱动的载具如电动汽车噪音低，污染程度少，越来越受到人们的重视。电动汽车一般包括车身、驱动转向轮、前从动轮、驱动桥、传动轴、电机、控制器、电池组、充电器等，电池组通过充电器由外接电源进行充电，再由电池组供电给电机带动车辆行进。由于电池组的电容量有限，采用外接电源充电也不够及时、方便，车辆的行程往往受到很大限制。目前，也有采用混合动力驱动的电动车，由发动机驱动发电机对电池组充电，再由电池组供电给电机带动车辆行进，这种混合动力结构能源总效率偏低。

### (三) 发明内容

本实用新型所要解决的技术问题是克服上述现有技术的不足，提供一种构造简单，组合简洁，工作可靠，由发动机和电机同时驱动负载的混合动力电动车。

本实用新型解决上述技术问题采用的技术方案是：一种混合动力电动车，其包括车身、驱动转向轮、前从动轮、驱动桥、传动轴、电机、控制器、电池组，其特征在于车身上还安装有发动机，发动机通过离合器、变速箱与传动轴相连，由控制器对发动机和电机的同时驱动实行控制。

本实用新型发动机还通过皮带连接一发电机，发电机通过导线和充电器与电池组相连，可以用来对电池组进行充电并在某些工作环境下进行能量反馈回收。

本实用新型由于在车身上设置一发动机，其与电机一起驱动负载工作，对照现有技术，其构造简单，组合简洁，工作可靠。车辆的行程可以不受电池组容量的限制。



#### （四）附图说明

图 1 是本实用新型动力驱动部分的结构示意图；

#### （五）具体实施方式

下面结合附图对本实用新型作进一步的描述：

一种混合动力电动车，其包括车身、驱动转向轮 1、前从动轮、驱动桥 2、传动轴 3、电机 4、控制器 5、电池组 6 等。图 1 是本实用新型动力驱动部分的结构示意图，由图 1 中可以看出，驱动转向轮 1 通过半轴与驱动桥 2 相连，驱动桥 2 和传动轴 3 通过法兰盘和螺栓相连，电机 4 连接在传动轴中间，其和传动轴 3 通过万向节和花键相连，电机 4 由控制器 5 控制，并由电池组 6 提供电能，电池组 6 通过充电器进行充电。充电器可以由外接电源提供电能。上述技术与现有技术基本相同，不在详述。

本实用新型的特点是车身上还安装有发动机 9，发动机通过离合器 8、变速箱 7 与传动轴 3 相连。离合器 8 由螺栓固定在发动机上，其与变速箱 7 通过花键联接，变速箱 7 另一端的法兰盘与电机 4 法兰盘通过万向节用螺栓联接。发动机和电机一起驱动负载，并由控制器 5 对发动机和电机的同时驱动实行控制。

本实用新型发动机 9 还通过皮带连接一发电机 10，发电机 10 通过导线和充电器与电池组 6 相连，可以用来对电池组进行充电，并在某些工作环境下进行能量反馈回收。

本实用新型由于在车身上设置一发动机，其与电机一起驱动负载工作，对照现有技术，其构造简单，组合简洁，工作可靠。车辆的行程可以不受电池组容量的限制。

说 明 书 附 图

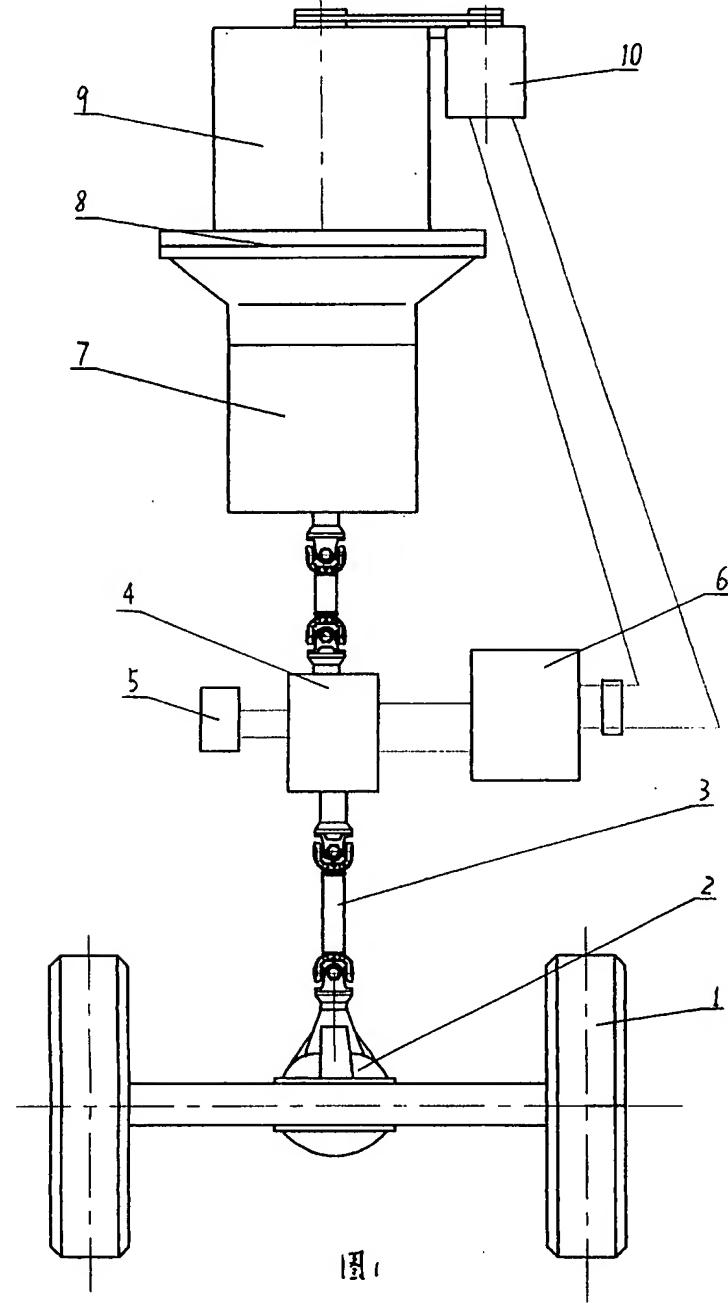


图1

English Translation of Chinese Patent Publication No. CN2501716Y listed in the International Search Report:

**Abstract:**

The utility mode patent relates to a hybrid electric vehicle, comprising: vehicle body, driving and steering wheels, front driven wheels, driving axle, driving shaft, electric motor, controller, battery set, and an engine mounted in the vehicle body. The engine connects to the driving shaft via a clutch and a transmission. The engine and the motor drive the vehicle together and the controller controls the synchronous driving of the engine and the motor. The engine further connects to a generator by a belt, the generator connects to a charger and the battery set by a conduct wire in order to charge the battery set. The engine and the motor of the patent work together, and the hybrid electric vehicle has a simple structure and reliable performance, and the mileage of the vehicle may not be limited by the capacity of the battery set.

Claims:

1. A hybrid electric vehicle comprising: vehicle body, driving and steering wheels, front driven wheels, driving axle, driving shaft, electric motor, controller, battery set, wherein an engine mounted in the vehicle body, the engine connects to the driving shaft via a clutch and a transmission, and the controller controls the synchronous driving of the engine and the motor.
2. A hybrid electric vehicle of claim 1, wherein the engine connects to a generator by a belt, the generator connects to the battery set by a conduct and a charger.

## Hybrid Electric Vehicle

### Field of the invention

The present invention relates to an electric vehicle, and particularly to a hybrid electric vehicle.

### Background of the invention

It is more and more important to protect the environment. Accordingly, electric vehicles are becoming an important trend, which are low-noise and environment protecting. The electric vehicles generally comprising a vehicle body, driving and steering wheels, front driven wheels, a driving axle, driving shafts, electric motor, controller, battery set and charger etc. The battery set is charged by outside electric power source, and then provides the power to the electric motor to drive the vehicle. Owing to the limited capacity of the battery set, when the battery set can not charged on time, the mileage of the vehicle is limited. In addition, a hybrid electric vehicle exists in the art, in which an engine drives an generator to charge the battery set, and the battery set then provides the power to the elector motor to drive vehicle. However, the hybrid electric vehicle has low energy efficiency

### Summary of the invention

The technical problem to be solved by the invention is to overcome the above insufficiency in the art, and to provide a type of hybrid electric vehicles with a simple structure, reliable operation, and which is capable of synchronous driving of the engine and the motor.

To solve above technical problem, the present invention provides a hybrid electric vehicle comprising: vehicle body, driving and steering wheels, front driven

wheels, driving axle, driving shaft, electric motor, controller, battery set, wherein an engine mounted in the vehicle body, the engine connects to the driving shaft via a clutch and a transmission, and the controller controls the synchronous driving of the engine and the motor.

In addition, the engine connects to a generator by a belt, the generator connects to the battery set by a conduct wire and a charger, such that the battery can be charged and energy can be recovered in some condition.

Further more, since the engine mounted in the vehicle body and the motor drive the vehicle together, compared with the prior art, the hybrid electric vehicle has a simple structure and reliable operation, and the mileage of the vehicle may not be limited by the capacity of the battery set.

#### **Brief description of the Drawings**

Fig. 1 is a schematic view showing a basic arrangement of power driving system of the invention;

#### **Description of the preferred embodiments**

The configuration of the present invention will be apparent from the following description of embodiments with reference to the accompanying drawings.

As shown in Fig. 1, a hybrid electric vehicle comprising vehicle body, driving and steering wheels 1, front driven wheels, driving axle 2, driving shaft 3, electric motor 4, controller 5, battery set 6 etc. It can be seen from Fig.1, driving and steering wheels 1 connect to driving axle 2 via differential axles. The driving axle 2 connects to driving shaft 3 via flanges and bolts. The motor connects to the middle of the driving shaft 3 by a universal joint and spline. The controller 5 controls the motor

4 and the battery set 6 provides power. The battery set is charged by a charger. The outside electric source provides the electric power to the charger. Above structures are substantially same to the prior art.

The features of the invention are that an engine 9 is mounted in the vehicle body, the engine 9 connects to the driving shaft 3 via a clutch 8 and a transmission 7, the clutch 8 is mounted on the engine by the bolts and connects with the transmission 7. The flange of one end of the transmission 7 connects to the flange of the motor 4 via a universal joint and bolt. The engine and motor drive the vehicle together, and the controller controls the synchronous driving of the engine and the motor.

The engine 9 connects to a generator 10 by a belt, the generator 10 connects to the battery set 6 by a conduct wire and a charger, such that the battery can be charged and energy can be recovered in some condition.

Since the engine mounted in the vehicle body and the motor drive the vehicle together, compared with the prior art, the hybrid electric vehicle has a simple structure and reliable operation, and the mileage of the vehicle may not be limited by the capacity of the battery set.